

Figure 1

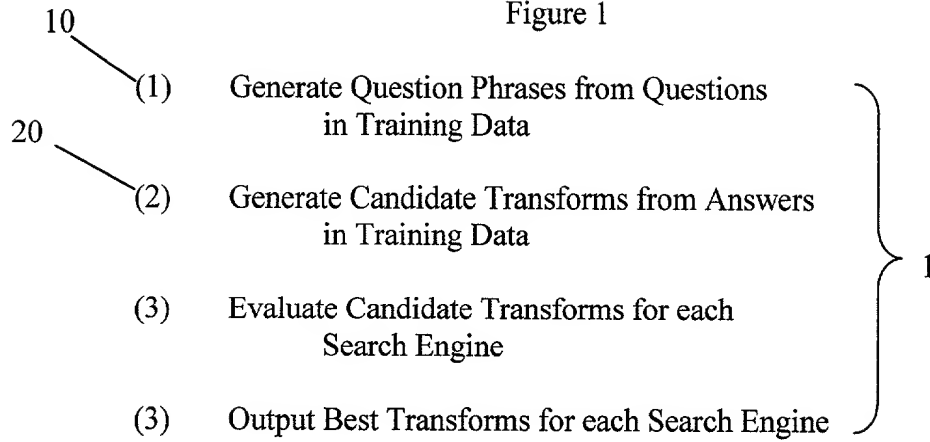


Figure 2

<i>Question Phrase(s)</i>
"who was"
"how do i"
"where is",
"where can i"
"what are"
"what is"
"what is a"

Figure 3

^ what (is | are | were | does | do | did | should | can) \s  
 ^ who (is | are | was | were | did | do | does) \s  
 ^ how (to | is | do | did | does | can | would | could | should | ) \s  
 ^ why (is | do | are | did | were | does) \s  
 ^ where (is | was | can | are | were | do | does) \s  
 ^ when (is | was | are | were | do | did | does) \s  
 ^ which \s

Figure 4

Question Phrase	Candidate Transforms
"what is a"	"the term" "component" "ans" "a computer" "telephone" "collection of" "stands for" "unit"

35

Figure 5

<i>Question Phrase</i>	<i>Candidate Transform</i>	$qt f_i$	$w_i^{(1)}$	$wtr_i$
52 "what is a"	"refers to"	30	2.71	81.3
	"refers"	30	2.67	80.1
	"meets"	12	3.21	38.52
	"driven"	14	2.72	38.08
	"named after"	10	3.63	36.3
	"often used"	12	3.00	36
	"to describe"	13	2.70	35.1

51

Figure 6

<i>Transform Length</i>	<i>Candidate Transform <math>tr_i</math></i>	$wtr_i$
3	"is used to"	32.89
	"according to the"	23.49
	"to use a"	21.43
2	"is a"	298.89
	"of a"	94.34
	"refers to"	81.3
1	"usually"	128.23
	"used"	110.39
	"refers"	80.1

65

63

Figure 7

(1) Examples = RetrieveExamples (*QP*, numExamples) <sup>71</sup>  
 for each <Question, Answer> in Examples  
     for each candidate transform *tr<sub>i</sub>*  
 (2)       Query = ApplyTransform (Question, *tr<sub>i</sub>*) <sup>72</sup>  
 (3)       Results = SubmitQuery (Query, *SE*) <sup>73</sup>  
         for each Document in Results  
             docScore = -1  
 (4a)       Subdocuments = getSubDocuments (Document, <sup>74a</sup>  
             subDocLen)  
         for each SubDocument in SubDocuments  
 (4b)       tmpScore = DocumentSimilarity (Answer, SubDocument)  
         if (tmpScore > docScore) docScore = tmpScore <sup>74b</sup>  
 (4c)       updateTransformScores (*tr<sub>i</sub>*, docScore) <sup>74c</sup>  
         updateTransformCounts (*tr<sub>i</sub>*)  
 (5)       AssignTransformWeights (TransformScores, TransformCounts) <sup>75</sup>

Figure 8

<i>Search Engine</i>	<i>Transform</i>	<i>WT<sub>i</sub></i>	<i>Search Engine</i>	<i>Transform</i>	<i>WT<sub>i</sub></i>
AltaVista	"is usually"	377.03	Google	"is usually"	280.68
	"refers to"	373.22		"usually"	275.68
	"usually"	371.55		"called"	256.64
	"refers"	370.14		"sometimes"	253.53
	"is used"	360.07		"is one"	253.24

82

83

Figure 9

